

Application No.: 10/686,021

Docket No.: P5630.0000/P023-A

REMARKS

This application has been reviewed in light of the Office Action mailed October 19, 2004. Non-elected claims 1-7, 9 and 10 have been cancelled and claims 8 and 11 have been amended without adding new matter. Applicants reserve the right to pursue the cancelled and pre-amended claims in this and other applications.

Claim 8 stands rejected under 35 U.S.C. 102(b) as being anticipated by Farrell, U.S. Patent No. 4,653,244 (hereinafter "Farrell"). This rejection is respectfully traversed in light of the foregoing amendments and the following remarks.

The invention relates to a screw for use with alternative lumber materials, such as composite lumber. With reference to Figure 7, the specification discloses a screw 200 having a lower threaded portion 250 with threads 254, and an upper threaded portion 260 with threads 264. The lower threads have a pitch 258, and the upper threads have a pitch 268.

Claim 8 recites a method comprising "providing a fastener having a shank, a head, a tapered section, a first threaded section and a second threaded section." Claim 8 has been amended to recite "said first threaded section being closer to said tapered section and said second threaded section being closer to said head, said first threaded section having a first thread angle and said second threaded section having a second thread angle smaller than said first thread angle." These features of the invention are shown and described, for example, in Figure 7 (elements numbered 251, 261) and associated text of the specification.

Claim 8 also recites the "first threaded section having threads having a first pitch and said second threaded section having threads having a second pitch different from said first pitch." The pitch is explained in the specification as the "axial distance from a point (usually the crest) on a thread to a corresponding point on an adjacent thread." Specification, page 5, lines 14-16. According to the invention, a "screw having threaded sections with a constant

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thread pitch [has] difficulty in tightly clamping ... two structures." Specification, page 8, lines 16-18. To this end, the differential pitch of the claimed invention "suppresses jacking and allows a tight clamp between" materials. Specification, page 8, line 24 to page 9, line 2; page 10, lines 22-26.

According to an embodiment of the invention, the pitch of the threaded section near the tip is greater than the pitch of the threaded section near the head. See, for example, Figure 7 and associated text. In use, one revolution of the screw causes the threaded section near the tip, with the greater pitch, to travel a greater axial distance than the other threaded section, and clamp two structures together. The pitch, as used in the specification, is therefore equivalent to the axial distance the screw travels during one revolution of the screw. The axial distance traveled per one revolution is sometimes referred to as "lead."

The preferred embodiments illustrated in the specification have a single helical thread in each threaded section. Some screws used in industry are formed with multiple threads on one threaded section. For example, a double thread screw has two helical threads nestled together on one threaded section so that the two helixes spiral up the shaft in tandem. According to the terminology used in the specification, and the functionality discussed above, the pitch of such a double thread screw is still equal to the axial distance from a point on a thread to a corresponding point on an adjacent thread of the same helix, which is equal to the axial distance it travels per one revolution, or its lead.

Farrell does not disclose threaded sections having different thread angles, and therefore fails to teach or suggest these claim limitations. Claim 8 is allowable over Farrell based on at least this reason.

Claims 8 and 11-13 stand rejected under 35 U.S.C. 102(b) as being anticipated by Takasaki, U.S. Patent No. 6,000,892 (hereinafter "Takasaki"). Reconsideration is requested in light of the foregoing amendments and the following reasons.

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As discussed above, claim 8 has been amended to recite "said first threaded section being closer to said tapered section and said second threaded section being closer to said head, said first threaded section having a first thread angle and said second threaded section having a second thread angle smaller than said first thread angle." Takasaki fails to teach or suggest these claim limitations. To the contrary, Takasaki teaches that its upper threads 5 have a thread angle γ_2 which is bigger than the thread angle γ_1 of the lower threads 4. See Figure 2 and associated text of Takasaki. For at least this reason claim 8 is allowable over Takasaki.

Claim 11 recites a method comprising "providing a fastener having a shank, a head, a first threaded section and a second threaded section." Claim 11 has been amended to recite "said first threaded section being closer to said tapered section and said second threaded section being closer to said head, [and] a neck section having no threads connecting said second threaded section and said head." Takasaki fails to teach or suggest these limitations. To the contrary, Takasaki requires helical ribs 6 between its upper threads 5 and the head 2. See Figures 1 and 4A-C, and associated text of Takasaki.

Claim 11 is allowable over Takasaki for at least this reason. Claims 12 and 13 depend from claim 11 and contain every limitation of claim 11. Claims 12 and 13 should be allowed for at least the same reasons as for allowance of claim 11, and for other reasons.

Claims 11-13 stand rejected under 35 U.S.C. 103 as being unpatentable over Farrell in view of Habermehl et al., U.S. Patent No. 6,074,149 (hereinafter "Habermehl"). Reconsideration is respectfully requested.

As discussed above, claim 11 has been amended to recite "said first threaded section being closer to said tapered section and said second threaded section being closer to said head, [and] a neck section having no threads connecting said second threaded section and said head." Ferrell, to the contrary, requires an annular ring flange 34 between its upper threaded section 30 and the head 12. Habermehl is relied upon by the Office Action only for

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disclosing that "the upper end of the first threaded section is proximate to a pair of mating surfaces." Habermehl does not remedy the deficiency of Ferrell, and, therefore, amended claim 11 is allowable over the proposed combination of Ferrell and Habermehl. Applicants also disagree with the Office Action that the references are properly combinable.

For at least these reasons, claim 11 is allowable over Ferrell in view of Habermehl. Claims 12 and should be allowed for at least the same reasons as for allowance of claim 11, and for other reasons.

New claim 14 has been added without adding new matter. New claim 14 recites, inter alia, a method comprising "providing a fastener having a shank, a head, a tapered section, a first threaded section and a second threaded section, said first threaded section being closer to said tapered section and said second threaded section being closer to said head, said first threaded section having a first thread angle and said second threaded section having a second thread angle smaller than said first thread angle." The method of claim 14 further recites "engaging said tapered segment of said fastener with an alternative lumber material; ... and rotating said fastener until said head engages with said alternative lumber material." For at least the reasons discussed above with respect to claim 8, new claim 14 is allowable over the prior art.

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In view of the above amendment, Applicants believe the pending application is in condition for allowance.

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